MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2016/2017

BFN2094 – CORPORATE RISK MANAGEMENT

(All sections / Groups)

01 MARCH 2017
2.30 p.m – 4.30 p.m
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of FIVE **(5)** printed pages excluding the cover page with four (4) questions only.
2. Attempt **ALL** questions.
3. Please write all your answer in the Answer Booklet provided.
4. Marks are shown at the end of each question.

STRUCTURED QUESTIONS (100 Marks)

There are FOUR (4) questions in this section. Candidates MUST answer ALL questions.

Question 1 (25 Marks)

(a) Bina Equipment manufactures and sells scaffolds and ladders that are used by construction firms. The products are sold directly to independent retailers in the South East Asia region. The company's risk manager knows that the company could be sued if a scaffold or ladder is defective, and someone is injured. Because the cost of products liability insurance has increased, the risk manager is considering other techniques to treat the company's loss exposures.

For each of the following risk management techniques, describe a specific action using that technique that may be helpful in dealing with the company's product liability exposure.

i. Loss control

(3 marks)

ii. Contractual risk (Noninsurance) transfer

(3 marks)

iii. Internal risk reduction

(3 marks)

(b) Dannis and Julia enter into a pooling arrangement for accidental losses. Assume that their losses are independent of each other and have the following distribution:

Possible outcomes (x_i)	Probability (p_i)
RM 0	0.945
RM 500	0.05
RM 1,000	0.0045
RM 5,000	0.0005

i. Compute the expected loss before risk pooling.

(4 marks)

Continued...

ii. Prepare a probability distribution table after the risk pooling.

(8 marks)

iii. What happens to the *expected loss* and *standard deviation* of the distribution of losses to each individual subsequent to the pooling arrangement? Briefly explain.

(4 marks)

Question 2 (25 Marks)

(a) What are the major types of reinsurance? Briefly discuss the primary roles of reinsurance.

(8 marks)

(b) Madam Farrah owns a factory building valued at RM1.8million, and she insures the property under four insurers at RM300,000 (Insurer A), RM400,000 (Insurer B), RM500,000 (Insurer C) and RM600,000 (Insurer D). Assume that each insurer includes a pro-rata liability clause in their policy. In the event that a RM500,000 loss occurs, how will Madam Farrah be able to claim from each insurer?

(12 marks)

Continued...

(c) A lawnmower manufacturer has the following loss distribution for its loss distribution for its annual products liability costs:

Loss =	RM0 with probability 0.984
	RM50,000 with probability 0.010
	RM250,000 with probability 0.004
	RM750,000 with probability 0.002

Determine the expected claim costs for each of the following policies:

i. Full Insurance
ii. RM50,000 deductible and a RM500,000 limit

(5 marks)

Question 3 (25 Marks)

(a) Cemerlang Bhd. is trying to determine how much to spend on safety equipment for its manufacturing plant. The first column in the following table gives values for possible expenditures. The second columns gives the expected number of worker injuries and the third column gives the expected severity per injury (cost to Cemerlang per injury) associated with each expenditure level. Using the following data determine what level of loss control spending should be undertaken by Cemerlang. Ignore the time value of money.

Loss Control Expenditure (RM)	Number of worker injuries	Average injury severity (RM)
0	200	
50000	170	
100000	148	8000
150000	130	
200000	122	
250000	118	

(12 marks)

Continued...

(b) Assume that there are two groups of people who have different types of lifestyles. The first group consists of songwriters and the second group consists of skydivers. Their loss distributions are shown in table below. There are two insurers, Insurer A and Insurer B. Insurer A has a policy of charging the same rate to all policyholders, while insurer B has the ability to identify the two groups according to their risk and charges them according to their expected claim cost.

	Outcomes (x)	Probability (p)
Songwriters	Loss (RM100,000)	0.05
	No loss (RM0)	0.95
Skydivers	Loss (RM100,000)	0.20
	No loss (RM0)	0.80

i. Find the expected claim cost for (i) songwriters, and (ii) skydivers.

(3 marks)

ii. How much would Insurer A charge each of the groups for a one-year policy of RM100,000 (ignoring investment returns, administrative costs and profit loading).

(3 marks)

iii. Demonstrate how Insurer B would succeed over Insurer A by attracting only low-risk individuals while turning away high-risk individuals to Insurer A.

(3 marks)

iv. What term best describes the above situation in which Insurer A will unknowingly be burdened with high- risk policyholders? What process could hinder such situation from happening to Insurer A?

(4 marks)

Question 4 (25 Marks)

(a) The development and selection of alternative risk management methods involves a fundamental tradeoff between the benefits of retention and the increased costs from greater risk. What are the benefits of increased retention?

(5 marks)

Continued...

(b) Use these loss distributions to answer the following questions *(ignore time value of money)*.

Liability Exposures		Property Exposures	
Amount of Loss	**Probability of Loss**	**Amount of Loss**	**Probability of Loss**
RM8,000,000	0.015	RM4,000,000	0.035
RM0	0.985	RM0	0.965

i. If the premium loading for the liability exposure is 35% of expected losses, what is the fair insurance premium for the liability exposure?

(5 marks)

ii. If the premium loading for the property exposure is 25% of expected losses, what is the fair insurance premium for the property exposure?

(5 marks)

iii. If both the liability & property exposures *(assume exposures are independent)* are bundled together and covered under a single contract that has a premium loading equal to 28% of the bundled expected losses, how much savings in premium will be achieved?

(10 marks)

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